SOIL PROPERTIES OF CONVENTIONAL AND ORGANICALLY MANAGED PEPPER CULTIVATIONS IN MID COUNTRY INTERMEDIATE ZONE IN SRI LANKA

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The present demand for organic products in the world market is growing rapidly. In parallel to global market, demand for organically grown black pepper (*Piper nigrum* L.) also expanding annually. As a result, more cropping lands are being certified as organic. Soil physical and chemical parameters are the effective tools to evaluate long term effects of conventional and organic farming systems as a consequence of different agronomic management practices. The aim of this study was to compare soil fertility status of conventional and organically managed pepper cultivations in Mid Country Intermediate Zone (IM_1) in Sri Lanka. Three pairs of conventional and organically managed pepper cultivations in three different locations in Mid Country Intermediate Zone were selected. Soil samples were drawn from top (0 - 20 cm) and subsoil (20 - 40 cm) were analyzed for different soil parameters. Data analysis was done by two factor factorial model using Statistical Analysis System. Results revealed that no significant difference ($p>0.05$) in soil pH, Electrical Conductivity (EC), Cation Exchange Capacity (CEC), total N, available P, exchangeable Mg, Ca and tested micronutrients in both conventional and organically managed systems in all three locations. Exchangeable soil K was significantly higher ($p<0.05$) in organic plantations compared to that of conventional plantations in both top and sub soil. Organic carbon also showed significantly higher ($p<0.05$) level in organic fields but only in the topsoil. Soil bulk density and porosity in both top and subsoils of conventional and organically managed cultivations in all three locations were not significantly different ($p>0.05$). The results of the study do not show remarkable effect of organic farming on tested soil chemical and physical properties in pepper cultivations. However, further studies are needed to assess biological soil properties of both farming systems.

Keywords: Conventional farming, Organic farming, Pepper cultivation, Soil fertility parameters